2024 February

Reviews

- (5) J. Khoury et al., Phys. Rev. D., 64, 123522, 2001.
- (6) R. Penrose, Cycles of Time: An Extraordinary New View of the Universe (Bodley Head), 2010.
- (7) M. Rees, The Observatory, 89, 972, 1969.
- (8) F. J. Dyson, Rev. Mod. Phys., 51, 447, 1979.
- (9) E. R. Harrison, ApJ, 403, 28, 1993.
- (10) P. Helbig, *The Observatory*, **138**, 22, 2018.
- (11) E. Hubble, Proc. Nat. Acad. Sci. USA, 15, 168, 1929.
- (12) P. Helbig, MNRAS, **519**, 2769, 2023.
- (13) C. O'Raifeartaigh & S. Mitton, Physics in Perspective, 20, 318, 2018.
- (14) P. van Orschot, J. Kwan & G. F. Lewis, MNRAS, 404, 1633, 2010.
- (15) W. Rindler, *MNRAS*, **116**, 6, 1956.
- (16) B. W. Roberts, Reversing the Arrow of Time (Cambridge University Press), 2022.
- (17) P. Helbig, The Observatory, 143, 238, 2023.
- (18) A. S. Eddington, Nature, 127, 447, 1931.
- (19) J. Barrow & F. Tipler, The Anthropic Cosmological Principle (Oxford University Press), 1988.
- (20) F. C. Adams & G. Laughlin, Rev. Mod. Phys., 69, 337, 1997.

Solar Surveyors: Observing the Sun from Space, by Peter Bond (Springer), 2022. Pp. 535, 24 × 16.5 cm. Price £29.99 (paperback; ISBN 978 3 030 98787 9).

Solar Surveyors is a very comprehensive overview of mostly space-based solar and interplanetary missions dating from the earliest rocket launches to study solar X-ray and ultraviolet emission in the years following World War II to the latest probes still operating. There is a long introductory passage giving the reader the fundamentals of solar physics, including solar radiation and the nuclear source of solar energy, as well as the history of the subject dating back to the time of Newton and Herschel. There is a well-illustrated section on ground-based observatories including the latest telescope in Hawaii with an outline of the helioseismology *GONG* network, followed by how the early rocket-borne instruments enabled solar astronomers to investigate the nature of the high-temperature solar corona and solar flares.

A discussion of interplanetary probes takes the reader on to the meat of the book, the space observatories looking at the Sun from low-Earth orbit to those viewing the Sun from interplanetary probes. Examples include the high-energy X-ray mission *RHESSI*, the two *STEREO* spacecraft and Japanese *Hinode* spacecraft, and *Solar Orbiter*, which is still about to obtain images of the polar regions of the solar corona as well as hard-X-ray images of flares.

Nearly all the references are to web sites rather than journal articles, which could be a little dangerous as web sites are liable to change with time. I did some spot checks and they seemed to be still valid. I am familiar with many of the missions listed and found at least one (to the *Coronas F* mission) where the wavelength ranges are wrong, apparently by a factor ten because of an erroneous Ångstrom-to-nanometre conversion.

Although the book is very well illustrated, some of the figures seem to have come from an imperfect reproduction of those in web sites.

The book would be very useful to those who are writing introductions to their PhD theses and perhaps the general reader who wishes to be familiar with the history of space solar physics, although the level of detail may be a little off-putting. — KEN PHILLIPS.